

Listing of the Claims:

1 - 29. (canceled):

30. (previously presented): An inherently antimicrobial composition comprising:

- a. a substrate; and,
- b. a coating, layer, or enhanced surface area on said substrate, comprised of polymeric molecules having a multiplicity of quaternary ammonium groups or biguanide groups not pendant to the main chain of the polymeric molecules, wherein said polymeric molecules are non-leachably bound to said substrate, and wherein said coating, layer, or enhanced surface area exhibits antimicrobial activity due to the presence of said polymeric molecules.

31. (previously presented): The composition of claim 30, wherein said polymeric molecules comprise at least one quaternary ammonium structure.

32. (canceled).

33. (previously presented): The composition of claim 30, wherein said polymeric molecules comprise a biguanide.

34. (previously presented): The composition of claim 30, wherein said material comprises all or part of a wound dressing, sanitary pad, a tampon, an intrinsically antimicrobial absorbent dressing, a diaper, toilet paper, a sponge, a sanitary wipe, food preparation surfaces, gowns, gloves, surgical scrubs, sutures, needles, sterile packings, floor mats, lamp handle covers, burn dressings, gauze rolls, blood transfer tubing or storage container, mattress cover, bedding, sheet, towel, underwear, socks, cotton swabs, applicators, exam table covers, head covers, cast liners, splint, paddings, lab coats, air filters for autos planes or HVAC systems, military protective garments, face masks, devices for protection against biohazards and biological warfare agents, lumber, meat packaging material, or paper currency.

35. (original): The composition of claim 30, wherein said flexible substrate is comprised, in whole or in part, of cellulose, or other naturally-derived polymers.

36. (original): The composition of claim 30 wherein said flexible substrate is comprised, in whole or in part, of synthetic polymers including, but not limited to: polyethylene, polypropylene, nylon, polyester, polyurethane, or silicone.

37. (canceled):

38. (previously presented): The composition of claim 30, wherein a cerium-containing catalyst catalyzes the reaction wherein the polymer is covalently, non-leachably bound to said substrate.

39. (previously presented): The composition of claim 30 wherein said non-hydrolyzable, non-leachable polymer chains are formed by polymerization of allyl-containing monomers.

40. (previously presented): The composition of claim 39 wherein said allyl-monomers are selected from the group consisting of: allyl amines, allyl amine salts, and allyl quaternary ammonium compounds, and ammonium salts.

41. (canceled)

42. (previously presented): The composition of claim 40 wherein said allyl-containing monomers are diallyldialkylammonium salts.

43. (canceled)

44. (previously presented): The antimicrobial composition of claim 30, wherein said substrate is a woven or nonwoven flexible matrix, and said composition is formed into the shape of a wound dressing.

45. (previously presented): The antimicrobial composition of claim 30, wherein said coating absorbs aqueous liquids.

46. (previously presented): The antimicrobial composition of claim 30, wherein said substrate is wood, lumber, or an extract comprising or a derivative of wood fiber.

47 - 50. (canceled)

51. (previously presented): An antimicrobial-coated composition for destruction of microbes contacting said composition, comprising:

- a. a substrate onto which a coating of antimicrobial polymers is bonded; and,
- b. said coating, formed of an effective amount of polymeric molecules having a multiplicity of quaternary ammonium groups not pendant to the main chain of the polymeric molecules, wherein said polymeric molecules are non-leachably and covalently bonded to surface sites of said substrate, wherein said polymers do not form using siloxane or ester bonds, and wherein said composition is absorbent of aqueous liquids, whereby said multiplicity of quaternary ammonium groups act to destroy microbes coming in contact with said groups.

52 – 66. (canceled)

67. (previously presented): The composition of claim 30, wherein said antimicrobial monomeric moieties polymeric molecules are polymers of diallyldimethylammonium chloride, also known as DADMAC.

68. (previously presented): The composition of claim 30, wherein said substrate is a woven fabric.

69. (previously presented): The composition of claim 30, wherein said substrate is a nonwoven.

70 - 71. (canceled)

72. (previously presented): The material of claim 30, wherein the polymer is a homopolymer.

73-78. (canceled)

79 - 85. (canceled)

86. (previously presented): The inherently antimicrobial composition of claim 30, wherein said substrate is a superabsorbent material.

87. (previously presented): The inherently antimicrobial composition of claim 86 wherein the superabsorbent material comprises a flexible substrate.

88. (previously presented): The inherently antimicrobial composition of claim 86 wherein said substrate is comprised, in whole or in part, of cellulose or other naturally-derived polymer.

89. (previously presented): The inherently antimicrobial composition of claim 86 wherein said substrate is comprised, in whole or in part, of synthetic polymer.

90. (previously presented): The inherently antimicrobial composition of claim 86, wherein said polymeric molecules comprise polymers of allyl-containing monomers.

91. (previously presented): The inherently antimicrobial composition of claim 90, wherein said allyl-containing monomers are selected from the group consisting of allyl amines, allyl amine salts, allyl quaternary ammonium compounds, diallyldialkylammonium compounds, and ammonium salts.

92. (previously presented): The inherently antimicrobial composition of claim 90, wherein the allyl-containing monomers comprise diallyldimethylammonium chloride, also known as DADMAC.

93. (previously presented): The inherently antimicrobial composition of claim 86, wherein said composition comprises all or part of a wound dressing, sanitary pad, a tampon, an intrinsically antimicrobial absorbent dressing, a diaper, toilet paper, a sponge, a sanitary wipe, burn dressings, gauze rolls, mattress cover, bedding, sheet, towel, underwear, socks, cotton swabs, applicators, exam table covers, head covers, cast liners, paddings, lab coats, air filters for autos planes or HVAC systems, military protective garments, face masks, devices for protection against biohazards and biological warfare agents, meat packaging material, or paper currency.